

AMENDMENTS TO THE DRAWINGS

See attached Figures 10 and 11 which have been labeled as Prior Art. Entry of the Replacement Sheets for Figures 10 and 11 into the Official File is respectfully requested.

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 1-19 are currently being prosecuted. The Examiner is respectfully requested to reconsider his rejections in view of the Amendments and Remarks as set forth hereinbelow.

CLAIM FOR PRIORITY

It is gratefully acknowledged that the Examiner has recognized the Applicant's claim for foreign priority. In view of the fact that the Applicant's claim for foreign priority has been perfected, no additional action is required from the Applicants at this time.

DRAWINGS

The Examiner has objected to Figs. 10 and 11. Attached hereto are Replacement Sheets for Figures 10 and 11 that are labeled as Prior Art. Applicants have complied with the Examiner's requirements. The Examiner's objection has been obviated.

ACKNOWLEDGEMENT OF INFORMATION DISCLOSURE STATEMENT

The Examiner has acknowledged the Information Disclosure Statement filed on July 20, 2004. An initialed copy of the PTO-1449 has been received from the Examiner. However, as set forth in Applicants' letter dated September 2, 2004, one of the Japanese

patents was incorrectly identified on the SB/08. The Examiner is respectfully requested to acknowledge the correct SB/08 submitted on September 2, 2004 and return an initialed copy to the offices of the undersigned at the Examiner's earliest convenience.

REJECTIONS UNDER 35 USC 103

Claims 1 and 2 stand rejected under 35 USC 103 as being unpatentable over Parlee et al, US 3,619,173 in view of Kobayashi et al, US 4,545,975 and further in view of Wilcox et al, US 6,359,267.

Claim 3 stands rejected under 35 USC 103 as being unpatentable over Parlee et al, US 3,619,173 in view of Kobayashi et al, US 4,545,975 and further in view of Wilcox et al, US 6,359,267 and Kunmann et al, US 6,179,897.

Claims 4-6 stand rejected under 35 USC 103 as being unpatentable over Porter, US 2,487,474 in view of Kobayashi et al, US 4,545,975 and further in view of Wilcox et al., US 6,359,267.

Claim 7 stands rejected under 35 USC 103 as being unpatentable over Porter, US 2,487,474 in view of Kobayashi et al, US 4,545,975 and further in view of Wilcox et al., US 6,359,267 and Kunmann et al, US 6,179,897.

Claim 8 stands rejected under 35 USC 103 as being unpatentable over Parlee et al, US 3,619,173 in view of Kobayashi et al, US 4,545,975 and further in view of Wilcox et al, US 6,359,267 and Khandros et al, US 4,424,853.

Claim 9 stands rejected under 35 USC 103 as being unpatentable over Parlee et al, US

3,619,173 in view of Kobayashi et al, US 4,545,975 and further in view of Wilcox et al, US 6,359,267 and Khandros et al, US 4,424,853 and Tinnes, US 4,273,315.

Claim 10 stands rejected under 35 USC 103 as being unpatentable over Porter, US 2,487,474 in view of Kobayashi et al, US 4,545,975 and further in view of Wilcox et al., US 6,359,267 and Khandros et al, US 4,424,853.

Claim 11 stands rejected under 35 USC 103 as being unpatentable over Porter, US 2,487,474 in view of Kobayashi et al, US 4,545,975 and further in view of Wilcox et al, US 6,359,267 and Khandros et al, US 4,424,853 and Tinnes, US 4,273,315.

Claims 12-13 stand rejected under 35 USC 103 as being unpatentable over Parlee et al, US 3,619,173 in view of Kobayashi et al, US 4,545,975 and further in view of Wilcox et al, US 6,359,267 and Ban et al, US 6,745,816.

Claims 14-18 stand rejected under 35 USC 103 as being unpatentable over Khandros et al, US 4,424,853 in view of Porter, US 2,487,474 or Parlee et al, US 3,619,173.

The rejections set forth above are respectfully traversed.

The Examiner acknowledges that the Parlee et al. patent fails to teach:

1. the use of a gas flow rate controller and a gas heating controller;
2. the use of a cartridge;
3. the use of a mold;
4. the use of a molten metal check mechanism; or
5. the use of a mold having a reactive gas supply mechanism.

It is respectfully pointed out that the Parlee et al. patent is directed to a process for

desulfurizing. In contradistinction thereto, the present invention relates to a fine particle producing apparatus for deoxidation. Further, in the Parlee et al. patent molten magnesium is utilized as a volatile treating material. In the present invention, powder or an elongate piece of metal (magnesium) is utilized as a fine metal particle that is active with respect to oxygen.

Accordingly, the present invention is quite distinct from Parlee et al. in technology including the configuration of the apparatus. For example, Parlee et al. do not disclose any configuration corresponding to the metal holder 30 in the present invention.

Applicants respectfully submits that the Parlee et al. patent is not analogous art according to M.P.E.P. § 2141.01(a) which states as following:

"The Examiner must determine what is 'analogous prior art' for the purpose of analyzing the obviousness of the subject matter at issue. 'In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned.' In re Oetiker, 977 F.2d 1443, 24 USPQ 2d 1443, 1445 (Fed. Cir. 1992)."

It is respectfully submitted that the Parlee et al. patent is not directed to analogous art because one of ordinary skill in this art would not be lead to use a process for desulfurizing to render obvious the claims of the present application.

Kobayashi et al. teach a method for producing magnesia (MgO) by vaporizing magnesium and then reacting the vaporised magnesium with oxygen.

In contradistinction thereto, the present invention relates to an apparatus for producing fine metal particles active with respect to oxygen, in which powder or an elongate piece of metal (magnesium) is used.

Accordingly, the present invention is different from Kobayashi et al, in technology including the configuration of the apparatus. For example, Kobayashi et al. do not disclose any configuration corresponding to the metal holder 30 in the present invention.

In addition, it is impossible for the apparatus of Kobayashi et al. to control the generation amount of the fine magnesium particles as described on page 20, lines 8 to 14 of the present specification.

With respect to Wilcox et al., they disclose an induction heating system for brazing applications, which comprises a vacuum chamber and an induction heating unit 204.

On the other hand, the present invention relates to an apparatus for producing fine metal particles active with respect to oxygen, in which powder or an elongate piece of metal (magnesium) is used. Accordingly, the present invention is different from Wilcox et al. in technology and the field of the invention.

Porter discloses preparation of magnesium nitride by vaporizing magnesium crystals, and mixing the vaporized magnesium with nitrogen or ammonia gas.

The Examiner acknowledges that the Porter patent fails to teach:

1. the use of a gas flow rate controller and a gas heating controller;
2. the use of a mold; or
3. the use of a molten metal check mechanism.

Magnesium crystals are used in device disclosed by Porter. In contradiction thereto, the present invention uses powder or an elongate piece of metal (magnesium). Further, vaporized magnesium is used in Porter instead of magnesium fine particles used in the present invention.

Khandros et al. relate to a technology of casting metals by melting readily oxidized metal elements such as aluminum, or alloys.

As recited in claim 8, a combination of elements are set forth wherein fine metal particles are generated by supplying a gas to powder or an elongate piece of metal (magnesium) in the present invention.

In Ban et al. patent discloses a surface of an oxide film of a molten metal poured into a cavity is deoxidized.

As recited in claim 12, a combination of elements are set forth wherein fine metal particles are introduced in a cavity and then reacted with a reactive gas to produce an active substance.

The Kunnumann et al. patent is directed to a method for producing a metal vapor wherein metal and graphite are combined in a vessel. The Kunnumann et al. patent does not overcome the deficiencies of the primary references nor does it render obvious the subject matter as set forth in the claims. Thus, the Examiner's rejection based on the Kunnumann et al. patent has been obviated.

The Examiner has rejected claims 1 to 18 as being obvious. It is respectfully submitted that the references cited against the independent claims are relate to completely different technological fields. Accordingly, it is respectfully submitted that the present rejections have been obviated. Claims 1-18 are now believed to be in condition for allowance.

NO PROSECUTION HISTORY ESTOPPEL

The claims have only been amended to delete the reference numerals. No prosecution history estoppel would apply to the interpretation of the limitations set forth in claims 1-19 in view of the fact that this subject matter has been continuously presented since the original filing date of the present application.

REQUEST FOR INTERVIEW

If the Examiner has any questions with regard to this application, he/she is respectfully requested to contact the undersigned so that an interview can be arranged in connection with this application.

CONCLUSION

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination.

Since the remaining patents cited by the Examiner have not been utilized to reject the claims, but to merely show the state of the art, no comment need be made with respect thereto.

In view of the above amendments and remarks, reconsideration of the rejections and allowance of all of the claims are respectfully requested.

All of the stated grounds of rejection have been properly traversed, accommodated, or

rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

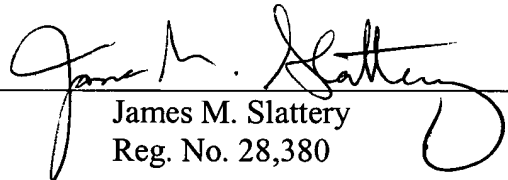
If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (703) 205-8000 in the Washington, D.C. area.

A prompt and favorable consideration of this Amendment is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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